Movember 27, 1940

MEMORANDUM FOR:

Mr. David A. Salmon, Chief, Division of Communications and Records State Department

I am enclosing herewith an original and one carbon of the new permutation table requested by you. It will provide for about 90,000 groups of the type that you want, with 2-letter differential and non-transposability feature.

You will note that certain letters have been emitted from Section 2 in order to bring the total down to around where you wanted it. The emitted letters have been scattered so as not to disturb the natural balance which the table must have if you are going to super-encipher the code. If at any time in the future you need additional groups you can get them merely by adding a few letters here and there in the vacant spaces in Section 2.

I am returning also the master table which you brought with you.

William F. Friedman, Principal Cryptanalyst.

2 Enclosures Permutation Tables

Juble compiled for State Dept Och 30, 1939

									SE	OTIC	OUNT 3	L																	O.	سألمصا	3	0,	193
BA	CA	DA	* *	FA	GA	HA	+ #	JA	KA	LA	MA	NA		PA	ÇA	RA	SA	TA	• •	VA	V.A	XA	* *	ZA	* *	* 5	* *	~					
FE	GE	HE	* *	JE	KK	LE	ME	NE		PE	QR	RE	SE	TE		VE	AE	XE		ZE	* *	* *	••	• •	BR	CE	DE	ı		1	w 3	-	
•								RI																									
PO	ÇO	R0	90	TO	* •	VO	WO	XO		70	* *	• •	• •	• •	BO	00	DO		TO	G()	HO	* *	JO	KO	LO	MO	NO						
VU	WU	XU		ZU	* *	* *	* •	* *	HU	CU	DU	* *	FU	ŒŰ	HU	4 +	JU	KU	LU	MU	NU	* *	PO	GU	RU	SU	TU	1					
ZY		**		• *	BY	OY	DY		FY	CY	HA.		JY	KY	LY	MY	NY	*.*	PY	QY	RY	SY	TY		VY	WY	XY						
A	•	Z	X	V	T	R	P	N	L	J	H	F	D	B	*	*	Ŷ	W	U	S	É	0	H	K	I	G	E	AV	EZ	* *	• •	UM	YU
Z	X	V	T	R	P	N	I.	J	H	F	D	В		*	Y	W	U	8	(_c	0	M	K	I	G	E	•	A			* *	OF	UL	**
₹ 7	T	R	P	N	L	J	H	F	D	B	٠		Y	W	U	3	Q	0	M	X	I	G	E	*	A	*	z	AT				UK	••
R	₽	N	L	J	吕	F	D	B		*	Y	W	U	S	Q	0	M	K	I	G.	K	•	A	٠	Z	X.	V	AS	EW	• •	OD	UJ	YN
N	L	J	H	F	D	B		*	Y	#	U	ន	Q	0	Æ	K	I	0	E	*	A	•	Z	X.	¥	T	R	AR	EV	IZ	OC		XW
J	H	F	D	B	•		Y	M.	υ	8	Ç	0	M	K	I	Ģ.	E		A		Z	X	A	T	R	P	N	Alle			OB	UH	YZ
F	D	В	•		Y	Ħ	U	8	Q	0	M	3.	I	G	ĸ		A	•	Z	X	V	Ţ	R	P	N	L	J	**	KT		• •		YK
B	*	*	Y	W	U	S	Q	0	M	K	I	G	E	٠	A		2	X	V	T	R	P	N	I,	J	H	F					UF	
	Y	W	U	8	Q	0	Ħ	X.	I	G-	K	*	A	•	Z	X	V	T	R	P	N	L	J	H	F	D	В	AN	KR	IV	• •	••	••
W	U	3	Q	0	M	K	I	G.	E		A		\mathbf{z}	X	A	T	R	P	N	L	I	H	F	D	В	•		AM	EQ		* *	UD	YH
S	Q	0	M	K	I	Ģ	E		A	٠	Z	X	V	T	R	P	N	L	J	H	F	D	\mathcal{B}		•	Y	W	AL		IT	0Z	UC	**
0	M	K	I	G	E		Α		Z	X	Δ	${f T}$	\mathbf{R}	P	N	L	J	H	F	D	В		•	Y	M	U	9	AK		IS	* *	UB	YF
K	I	Œ	E		A		Z	X	V	T	\mathbf{R}	P	N	L	J	H	F	D	\mathfrak{B}	*	•	Y	Ħ	U	S	Ç	0	AJ	IN	IR		• •	**
G	E		A	4	Z	X	V	T	R	P	N	L	J	H	F	D	\mathbf{B}	•		Y	H	U	S	Q	0	M	K	* *	M	ΙQ	OM		XD
	A	•	\mathbf{Z}	X	A	T	R	P	F	L	J	H	f	D	В	•	•	Y	W	U	S	(پر	Q	M	K	I	G.					• •	
•	\mathbf{z}	X	V	T	R	P	N	L	J	H	F	D	B	•	•	Y	À	Ū	S	Q	0	M	K	I	G	E							
X	¥	T	\mathbf{R}	Þ	N	L	J	H	F	D	B	*	•	Y	Ä	U	S	Q	0	M	K	I	G	L	*	A	•					UZ	1
T	R	P	N	L	J	H	F	D	B	•	٠	Y	A	U	8	Q	0	M	K	I	G.	E	•	A	٠	Z	X						
P	N	L	J	H	F	D	B	•		T	W	U	8	Q	0	M	K	I	G	E	*	A	•	2	X	V	T					• •	
L	J	H	F	D	B	*	•	X	M	Ū	8	Q	0	K	K	I	G	E	4	A	•	\mathbf{z}	X	A	Ţ	R	P					UW	
Ħ	F	D	B		•	Y	Ħ	U	8	Q	0	M	K	I	G	Ä	•	A	•	Z	X	V	T	R	P	N	L					LA	
*	*	X	M	U	3	Q	0	M	K	I	Œ	E	•	A		2	X	V	T	R	₽	N	Ļ	J	H	F	D					UT	
Y	W	U	8	Q	0	M	K	I	Q	E		A		Z	X	y	T	R	P	N	L	J	H	P	D	В	•					US	
σ	8	Q	0	M	K	I	G			A	*	Z	X	4	T	R	P	N	L	J	H	F	D	B	•	•	Y					UR	
Q	0	X	K	I	G	E	*	¥	*	Z	X	V	T	R	P	K	L	J	H	F	D	B	•	•	Y	¥	ס					Uie	
M	K	I	G	E	*	A	*		X	V			P	N	L	J		F	D	B	*		Y	A	U	S	Eq.					* *	
I	Ģ	I	4	A	*	Z	X	V	J.	R			L	J	H	F	D	B		4	Y	Ħ	Ū	S	C	-	M					• •	
E	*	<u>. A</u>		7.	X	V	T	R	P	N	L	J	H	F	D	B		•	Y	W	U	8	Q	0	M	X	I.		4 ·				YR

SECTION 2

SECTION 3

BACADA .. FAGAHA .. JAKALAMANA .. PAQARASATA... VAWAXA .. ZA FEGEHE" JEKELEME ME. REQUERESETE" VEWEXE" ZE" " " BECEDE ITIKILIMIMI PIQIRISITI "VIWIXI" ZI "" "BICIDI FIGIHI JPO QO RUSO TO .. VO WO XO .. ZO BO CODO .. FO GO HO .. JOKO LO MO NO I VU WU XU .. ZU BU CUDU .. FUGUHU .. JU KU LUMUPU .. PU QU AU SU TU V ZY BY CY DY .. FYGY HY .. JY KY LYMY NY - PY GY RY SY TY .. VY WY XY VA · ZXVTRPNLTHFDB · · YWUSQOMKIGE AVEZ · · · UM) ZXVTRPNLJHFDB. YWUSQOMKIGE.A. " "OFUL. VTRPNLJHFDB. YWUSQOMKIGE A, ZAT.UK. RPNLJHFDB. . YWUSQOMKIGE. A. ZXV ASEW. OD UTY NLTHEDB. · YWUSDOMKIGE · A · ZXVTRAREVIZOC · Y THEDB. YWUSROMKIGE. A. ZXVTRPNIAR. .. OBUHY, FDB. YWUSROMKIGE. A. ZXVTRPNL JI.ET... OBUHY, JB. · YWUSQOMKIGE. A.ZXVTRPNLTHEINESIW. UFY · YWUSQOMKIGE · A · ZXVTRPNLTHFDBANERIV · · · · WUSGOMKIGE. A.ZXVTRPNLJHFDB., AMEQ... .. UDY SQOMKIGE A · ZXVTRPNLJHFDB · · YWAL ·· IT OZUC: OMKLGE. A. ZXVTRPNLJHFDB. · YWUSAK .. 15 .. UBY HIGE . A. ZXVT RPNLJHFDB. YWUSQOATENIR. GE. A. ZXV TRPNLTHED B. . YWUSQOMK .. EMIROW .. Y · A · ZXVTRPNLJHEDB · · YWUS QOHK | GAHEL "OV . YO XVTRPNLJHFDB. YWUSQOMKIGE. A. IAFETWOTUZ. TRPNLTHEDB .. YWUSQOMKIGE . A . ZX ... "MOS PNLJHFDB., YWUSQOMKIGE, A, ZXVTADEHILOR ... LIHEDB. YWUSQOMKIGE. A. ZXVTRP'AC. IK OQUW. H FDB . . Y WUSGOMK I GE . A . ZXVTRPNL .. . EF IT .. UV .. WISSIMA CHARPALTHING · · YWUSQOMKIGE · A · ZXVTRPNLTHFD ... DHONUT · YWUSQOMKIGE.A.ZXVTRPNLJHFDB. .. "EC" ON USYI USQOMK IGE. A. ZXVTRPNL JHFJB. Y. EBIFOLLRY QOMKIGE. A. ZXVTRPNLJHFDB. YWLIAZ ... OKLQ. MKI GE. A. ZXVTRPNLTHFDB. YWUSQ! "DOJ. Y ISE A ZXVTRPNLJHFDB .. YW USQOM K.... YS ZXVTRPNLJHFJB. · Y WUS QOMKIAW · 1BOHLWYF SECTION 3 SECTION 2